biosera

The serum professionals

biosera

Fetal Bovine Serum

Production Process of FBS

Biosera FBS is derived from blood, collected asceptically using a closed sterile bag system. The blood is immediately centrifuged and the serum frozen for transfer to our processing facilities. On receipt at the processing plant, the serum is thawed, tested for acceptability, pooled and passed through three 100nm (0.1um) filters. The serum is bottled in our class 10,000 cleanroom in a class 10 hood.

Full Traceability

For all batches we have full recorded traceability. Our labelling system is computerised and designed for batch-to-batch clarity and we monitor the movement of each batch through treatment and production to final packaging.

Testing

Biosera vigorously tests serum for sterility, mycoplasma, specific viruses and the ability to support cell growth. Certified and special certified sera are subject to a battery of further tests including chemical components, protein electrophoresis and radial immunodiffusion. See example of a certificate of analysis on following page.

Sterility

All sera are tested for the absence of bacteria (under aerobic and anaerobic conditions) and fungi. The tests are carried out over 15 days.

Mycoplasma

Serum is tested for mycoplasma by inoculation of mycoplasma test broth followed by subculturing into 3T3 cell mono layers and mycoplasma test agar plates. The cells are incubated and stained and visually examined for the presence of mycoplasma.

Viruses

All of our serum is tested for Bovine Viral Diarrhoea (BVD), Infectious Bovine Rhinotracheitis (IBR), Parainfluenza Type 3 (PI3)

Sera are tested for the absence of the indicated viruses using cultures that are grown for a minimum of 21 days in medium supplemented with 15% test serum. They are subcultured at least twice during this period. Positive control cultures that have been inoculated with viruses are tested in parallel. Test cultures must have a result of non-detection for cytopathic observations, fluorescent antibody staining, inclusion body staining and haemadsorption. The test is an Elisa test out of pooled batches of final filtered products.

Endotoxin

Endotoxin testing standard against which the endotoxin levels are measured is standardised by USP reference endotoxin standard LAL method.

BSE

Raw material collected from cows over 30 months in the EU must be screened for BSE. The mother bovine are systematically tested by the veterinary service for the presence of prions in the brain which is the only part of the animal where prions are concentrated enough to be detected. Only batches from sources shown to be free of BSE are then used. Other EU approved sera comes from BSE free regions (see Origins of FBS table)

Cell Culture

Biological performance is assessed using cell culture medium supplemented with the serum being tested at a final concentration of 10%. During the test period, cultures are examined microscopically for any morphological abnormalities that may indicate toxic components in the serum. Cell growth, plating efficiency and cloning efficiency are tested on any of the following cell lines - HeLa, L929, SP2/O-AG8, MRC-5, CHO and BHK.

Origins of FBS

With breakouts of viral diseases in animals becoming prevalent around the world, it has become more important than ever to know the source of the sera and the risk levels of that Country. The SSC have researched many countries and listed them with a Geographical BSE Rating (GBR). See tabulation below for definitions:

GBR Status	Presence of one or more cattle clinically or pre-clinically infected with the BSE agent in a region or Country
I	Highly Unlikely
II	Unlikely but not excluded
III	Likely but not confirmed or confirmed at a low level
IV	Confirmed at a higher level

To interpret the above table, the "cleanest" areas are those that have a GBR I rating.

Main Origins of Today's FBS Supplies and their GBR Status

Australia	I
Canada	III
Costa Rica	II
Denmark	III
France	III
Mexico	III
New Zealand	I
South America (Argentina, Brazil, Chile, Paraguay, Uruguay)	I
USA	III

All information regarding the Geographical BSE status has been taken from the European Commissions Scientific Steering Committee reports from the following websites and was correct information at the time of print.

http://europa.eu.int/comm/food/fs/sc/ssc/outcome_en.html#reports

http://www.efsa.eu.int/press_room/press_release/575_en.html

Certified, Special Certified and Qualified FBS

Certified Serum

Certified FBS is our traditional, high quality FBS and meets the requirements of the most discriminating FBS users. Over 50 tests are carried out and recorded on the Certificates of Analysis. Certificates can be downloaded from our website: www.biosera.com.

Product Code	Country of Origin
S1520	North America
S1600	Central America
S1700	Australia
S1750	Denmark
S1810	South America (Paraguay, Uruguay, Chile, Brazil, Argentina, Columbia)
S1820	France

Note: All mother bovine from France and Denmark over the age of 30 months are tested for BSE.

Special Certified Serum

Biosera offers specially treated/tested Certified FBS to meet customers' specific requirements. If you require a treatment not listed here, please contact your local Biosera office or Distributor. Special Certified serum is available from all the origins listed above.

Charcoal Stripped FBS

Product codes: S152F, S160F, S170F, S175F, S181F, S182F

Double Charcoal Stripped FBS

Product codes: S152X, S160X, S170X, S175X, S181X, S182X

FBS treated with charcoal activated dextran has reduced levels of various hormones and other factors, making it useful for assaying cells used in receptor and other signal related studies

Dialysed FBS

Product codes: S152D, S160D, S170D, S175D, S181D, S182D

FBS is dialysed against an osmo-equivalent saline solution using membranes with a cut-off rated at 12,000 Daltons (previously 10,000 Daltons). The concentration of small components such as ions, salts, nucleotides, amino acids, vitamins, some hormones and other metabolites is substantially reduced.

Certified, Special Certified and Qualified FBS Cont.

Stem Cell Tested FBS

Product codes: S152S, S160S, S170S, S175S, S181S, S182S

Our highest quality FBS lots are screened for use with stem cells. Using cells specifically grown by a leading stem cell company, we assay these lots for growth rate, plating efficiency, colony morphology and toxicity.

Low IgG FBS

Product codes: S152I, S160I, S170I, S175I, S181I, S182I

The level of IgG in FBS is normally low but can increase significantly if there has been an immune challenge to the mother. By screening each sample of FBS with an IgG ELISA we identify and pool those samples with very low levels of IgG. Low IgG FBS is especially useful for the production of monoclonal antibodies. The purification of some target proteins can also be improved by the use of Low IgG FBS. By sourcing naturally low IgG FBS, Biosera avoids the need to chemically treat the serum maintaining a higher quality and simplifying customers' regulatory process.

Low Lipid FBS

Product codes: S152L, S160L, S170L, S175L, S181L, S182L

Cholesterol, Triglycerides and Phospholipids are removed by treating the FBS with a product called Liposorb.

Gamma Irradiated FBS

Product codes: S152G, S160G, S170G, S175G, S181G, S182G

Serum is λ-irradiated by a 60Co source with 25kGy to eliminate mycoplasma and λ-radiation sensitive viruses.

Tetracycline Free Fetal Bovine Serum

Product codes: S152T, S160T, S170T, S175T, S181T, S182T

Biosera tests batches of sera for the absence of Tetracycline.

Qualified Fetal Bovine Serum

Product code: S1900 (old code S1870)

For customers working with robust cells or under budget constraints, Biosera offers Qualified serum. Qualified serum is processed similarly to Certified FBS but does not undergo the same level of testing. All serum is routinely tested for sterility, mycoplasma and viruses but the Qualified serum is only tested for its cell growth properties. The lowered cost associated with producing this serum allows Biosera to offer it at a discount.

Definitions

Animal Free	Does not contain materials of animal origin.
BSE:	Bovine Spongiform Encephalopathy is a disease affecting the central nervous system
Calcium Depleted:	The product has reduced levels of calcium
Charcoal Treated:	The product has been treated with charcoal/dextran, reducing the level of some hormones
Country of Origin:	The country or region in which the donor/animal serum was harvested
Dialysed:	The product has been dialysed with a cut off of 10,000 or 12,000 Daltons against an osmo-equivalent saline solution
EC Approved:	Meets with European Community requirements for production or importation of sera within the European Community
Gamma Irradiated:	Treatment with λ-radiation to inactivate certain viruses
Heat Inactivation:	Incubated at 56oC for 30 minutes to inactivate the compliment cascade
Low Lipid:	The level of lipids and lipoproteins is reduced by treatment
Low IgG:	The serum has levels of IgG below 5mg/ml
NCCC Guidelines:	Many of our test methods are based on the guidelines set by the National Cell Culture Centre
Source:	The Country or region in which the donor/animal serum was harvested
USDA Approved:	Used to describe a source that meets USDA (United States Department of Agriculture) importation requirements
Virus Tested:	The product has been tested for the viral groups noted on the product analysis

Other Sera Types

For more information on the sera below, please contact your local Biosera office or one of our many distributors. All the information is also available to download from our website, www.biosera.com

Product	Code
• Bovine Serum	S0250, S0270, S0600
• Bull Serum	S1400
• Calf Serum	S0200, S0400
• Cat Serum	S2800
• Chicken Serum	S0500
• Dog Serum	S2900
• Donkey Serum	S2170
• Donor Bovine Serum	S0600
• Donor Calf Serum	S0100, S0150
• Fetal Horse Serum	S0960
• Goat Serum	S2000
• Guinea Pig Serum	S2450
• Horse Serum	S0900, S0910
• Lamb Serum	S2300
• Mouse Serum	S2160, S2161
• New Born Calf Serum	S0700, S0750
• Pig Serum	S2400
• Rabbit Serum	S2500, P6130
• Rat Serum	S2150
• Sheep Serum	S2350, P6120
• Pregnant Horse Serum	S0950

The above sera can also be specially treated.
All sera is stored at –20oC, presented frozen, shelf life 48 months

Synthetic Media, Powdered and Liquid:

Standard Media

Biosera media formulations are manufactured following original publications; standards set by the Tissue Culture Association and accepted formulations. These formulations may vary from these standards by substituting hydrated, chlorinated and/or the salt forms of certain compounds where such substitutions contribute to improved performance of the product.

Custom Made Formulations

The realisation and production of your personalised cell culture media compositions is another of our services. Let us know the components needed and the quantities that correspond and we will produce this to your requirements. There may be a short delay for this service.

Quality Assurance

The media formulations are computerised and each batch is generated for weight and batch number. All of the chemicals, raw materials and equipment that we use is of the highest quality. All new batches of chemicals are introduced in the process after stringent QC.
The water used for media preparation is of the best quality. It is of WFI quality, produced in several steps including centrifugal distillation. The conductivity is measured in line and the water is always freshly processed and cooled down to 20 °C before adding the powder.

Equipment and Conditions

All equipment used for the manufacturing of powdered and liquid media are made of chemical inert materials, which will not contaminate the final product. Humidity and temperature are controlled constantly to guarantee that all chemicals are ground into fine powder. Being passed twice through 0.2/0.1 µm pore size sterile filters carries out the liquid media sterilisation.

Batch Size

Batch sizes for powdered media range from 1 to 10,000 Litres, for liquid media from 1 to 2,000 Litres.

End Product Testing

Samples of powder and liquid media are tested physically for osmotic effects and pH. Osmolarity is determined by means of the freezing point method. The chemical composition and the homogeneity of the mixture of the components are controlled by analysis of glucose in the sample. Biological performance testing is done on different cell lines. Endotoxin testing is performed using the Limulus Amoebocyte test.

Storage and Stability

Powdered media are stable for 3 years when stored at 2-8 °C in their original containers and in dry, dark conditions. Heat, light and humidity can greatly effect the performance of powdered media therefore we recommend that powder be stored correctly if not used entirely. All liquid media formulation are stable for up to 2 years. They must be stored at 2-8 °C in the dark. Media concentrates are stored at 8-10 °C and are stable for 1 year at the original pH.

Advantages and Use of Powdered Tissue Culture Media

While liquid media are convenient to use, there are several drawbacks which makes powdered media also attractive.

1. Long term studies can be carried out using a single batch of powdered medium.
2. Storage time up to four years.
3. Reduces the unit costs by 3-10 times.
4. Storage space is greatly reduced.

Advantages of Liquid Media

1. Lower labour costs.
2. Quality control and functional testing.
3. Stock organisation is easier to control.

The protocols of all steps during processing and all final test results reassure the customer that each batch meets the criteria for production, has passed all test criteria and has been manufactured to the product specifications.

The retained samples allow also the testing of long-term shelf-life studies and also controls in response to customer inquiries.

Preparation Instructions for Powdered Media

Powdered media are extremely hygroscopic and should be protected from atmospheric moisture. The entire contents of each package should be closed immediately after opening. Preparing a concentrated solution of medium is not recommended as precipitates may form.

Supplements can be added prior to filtration or introduced aseptically to sterile medium. The nature of the supplements may affect storage conditions and shelf life of the medium.

1. Measure out 90% of initial required volume of water.
   Water temperature should be 15 - 20°C.
2. While gently stirring the water, add the powdered medium.
   Stir until dissolved. Do not heat.
3. Rinse original package with small amount of water to remove all traces of Powder. Add to solution in step 2.
4. Supplementation of the medium after your needs.
5. While stirring, adjust the pH of the medium to 0.1 - 0.3 pH units below the desired pH since it may rise during filtration.
   The use of 1N CL or 1N NaOH is recommended.
6. Add additional water to bring the solution to final volume.
7. Sterilize immediately by filtration using a membrane with a porosity of 0.22 microns or less.
8. Aseptically dispense medium into sterile container add desired quantity sodium bicarbonate in water for tissue culture use. (see table page 73)

Product Storage

Store the dry powdered medium at 2-8°C under dry conditions and liquid medium at 2- 8°C in the dark.

Any or all of the following may recognize deterioration of the powdered medium:
- colour range
- granulation/ clumping
- insolubility

Deterioration of the following into liquid media
- pH change
- precipitate or particulate matter throughout the solution
- cloudy appearance
- colour change.

The nature of supplements added may affect storage conditions and shelf life of the medium. Product label bears expiration date.

Product Codes and Description

For compositions of the following media products please visit www.biosera.com.

Unless otherwise stated - liquid:
Storage: +4°C
Life: 24 months w/o L-Glutamine
Life: 12 months w/ L-Glutamine

Unless otherwise stated – powder:
Storage: +4°C
Life: see individual products

BME Basal Media Eagle

For diploid or primary cell cultures. It is the simplest of the basal media with all the essential components for growth. BME ideally supports cell lines such as HeLa, L-cells and primary mammalian fibroblasts.

L0042 BME w/ Earle's Salts w/o L-Glutamine

L0043 BME w/ Earle's Salts w/ L-Glutamine

L0044 BME w/ Earle's Salts w/ 25mM HEPES w/o L-Glutamine

L0045 BME w/ Earle's Salts w/ L-Glutamine w/ 25 mM HEPES

L0046 BME w/ Hanks' Salts w/o L-Glutamine

P0030 BME w/ Earle's salts w/ L-Glutamine w/o Na Bicarbonate (48 months)

P0031 BME w/ Hanks' salts w/ L-Glutamine w/o Na Bicarbonate (48 months)

X0026 BME 10X w/ Hanks` Salts w/o L-Glutamine w/o Na Bicarbonate

X0042 BME 10X w/ Earle's Salts w/o L-Glutamine w/o Na Bicarbonate

X0552 BME Amino Acids 100X w/o L-Glutamine

X0555 BME Vitamins 100X w/o L-Glutamine
Storage: -20°C Life: 24 months Presentation: Frozen

CMRL

A media developed by Connaught Medical Research Laboratories.
Can be used for cloning monkey kidney cells and growing other mammalian cell types in cultures.

L0053 CMRL 1066 Media w/o L-Glutamine

P0058 CMRL w/ L-Glutamine w/o Na Bicarbonate (36months)

Product Codes and Description

DMEM

Dulbecco's Modified Eagles Media

For supporting and maintaining a vast range of mammalian cell types

DMEM Low Glucose (= 1,0g/L)

L0060	DMEM Low Glucose w/ L-Glutamine w/ Na Pyruvate
L0064	DMEM Low Glucose w/o L-Glutamine w/ Na Pyruvate
L0065	DMEM Low Glucose w/ L-Glutamine w/ Na Pyruvate w/ 25 mM HEPES
L0066	DMEM Low Glucose w/ stable L-Glutamine w/ Na Pyruvate
L0067	DMEM Low Glucose w/o L-Glutamine w/ Na Pyruvate w/ 25 mM HEPES
L0070	DMEM Low Glucose w/ Na- Pyruvate w/o Na Bicarbonate
P0061	DMEM Low Glucose w/ L-Glutamine w/ Na Pyruvate w/o Na Bicarbonate (36 months)

DMEM High Glucose (= 4,5g/L)

L0100	DMEM High Glucose w/o L-Glutamine w/ 25mM HEPES
L0101	DMEM High Glucose w/o L-Glutamine w/o Na Pyruvate
L0102	DMEM High Glucose w/ L-Glutamine w/o Na Pyruvate
L0103	DMEM High Glucose w/ stable L-Glutamine w/ Na Pyruvate
L0104	DMEM High Glucose w/ L-Glutamine w/ Na Pyruvate
L0106	DMEM High Glucose w/o L-Glutamine w/ Na- Pyruvate
L0107	DMEM High Glucose w/25mM HEPES w/ stable Glutamine
P0102	DMEM High Glucose w/ L-Glutamine w/ Na Pyruvate w/o Na Bicarbonate (36 months)
P0103	DMEM High Glucose w/ L-Glutamine w/o Na Pyruvate w/o Na Bicarbonate (36 months)

Product Codes and Description

DMEM - Ham's F12

Offers excellent performance for certain epithelial, endothelial and granulose cell types. With proper supplementation it is a highly successful basic media for serum free cell culture

L0090	DMEM – Ham's F12 w/o L-Glutamine w/o HEPES
L0091	DMEM – Ham's F12 w/o L-Glutamine w/o HEPES w/o Glucose
L0092	DMEM – Ham's F12 w/ stable L-Glutamine w/15mM HEPES
L0093	DMEM – Ham's F12 w/L-Glutamine w/15mM HEPES
L0094	DMEM – Ham's F12 w/o L-Glutamine w/15mM HEPES
L0095	DMEM – Ham's F12 w/ L-Glutamine w/25mM HEPES
L0096	DMEM –Ham's F12 w/o L-Glutamine w/25mM HEPES
P0095	DMEM Ham's F12 w/ L-Glutamine w/ 15mM HEPES w/o Na Bicarbonate (36 months)

F10 Nutrient Medium (Ham's F10)

To support the growth of Chinese Hamster Ovary Cells under serum free conditions and other mammalian cell types with serum supplementation. It's a popular medium for growth of fastidious cell lines.

L0130	Ham's F10 w/ L-Glutamine w/ 25mM HEPES
L0140	Ham's F10 w/L-Glutamine
L0145	Ham's F10 w/o L-Glutamine
X0150	Ham's F10 10X concentrate w/ L-Glutamine w/o Na Bicarbonate
P0146	Ham's F10 w/ L-Glutamine w/o Na Bicarbonate (36 months)

F12 Nutrient Medium (Ham's F12)

Hams F12 medium was originally developed for single-cell plating of near diploid cells. It is a rich modification of F10 medium designed for the cloning and serial propagation of CHD-3 and CHL-1 cell lines in the absence of serum. It also offers enhanced performance for cells growing at low density. F-12 features increased levels of choline, I-inositol, putrescine and several amino-acids. It is excellent for cultivating carcinoma cells, rat skeletal myoblasts, lung cells and rat, rabbit or chicken embryos

L0132	Ham's F12 w/ L-Glutamine w/ 25mM HEPES
L0133	Ham's F12 w/o L-Glutamine w/25mM HEPES
L0135	Ham's F12 w/ L-Glutamine
L0136	Ham's F12 w/o L-Glutamine
X0155	Ham's F12 10X concentrate w/o L-Glutamine w/o Na Bicarbonate
P0134	Ham's F12 w/ L-Glutamine w/o Na Bicarbonate (36 months)

F14 Nutrient Medium (Ham's F14)

L0138	Ham's F14 w/ 6g/L Glucose & 1mg/L ATP

Product Codes and Description

Fishers Medium

Formulated to support cell propagation from leukaemic mice

P0105	Fishers medium w/ L-Glutamine w/o Na Bicarbonate (24 months)

Glasgow MEM BHK 21

MEM modified to support the growth of BHK-21 cells. Developed by adding 10% tryptose phosphate broth and twice the concentration of amino acids and vitamins to Eagle's BME. Used to study cell competence from genetic Factors

L0221	Glasgow MEM BHK 21 w/ L-Glutamine w/o Tryptose Phosphate Broth
X0122	Glasgow MEM BHK 21 10Xw/ L-Glutamine w/o Tryptose Phosphate Broth
X0123	Glasgow MEM BHK 21 10X w/o L-Glutamine w/o Tryptose Phosphate Broth
P0120	Glasgow MEM BHK 21 w/ L-Glutamine w/o Na Bicarbonate w/o Tryptose Phosphate Broth (36 months)

Iscoves Modified Dulbecco's Medium (IMDM)

Iscoves media are enriched modifications of DMEM containing sodium selenite. They are excellent for rapidly proliferating high-density cell cultures. The addition of BSA, purified human transferring and soybean lecithin creates serum free condition ideal for supporting B and T lymphocytes. IMDM was the first media utilising HEPES buffer. Other cell types can be cultured using this medium under serum free or reduced serum conditions.

L0190	IMDM w/o L-Glutamine w/25mM HEPES
L0191	IMDM w/ stable L-Glutamine w/25mM HEPES
L0192	IMDM w/o L-Glutamine w/o HEPES
P0191	IMDM w/o Na Bicarbonate w/ L-Glutamine w/25mM HEPES (36 months)
P0192	IMDM w/ L-Glutamine w/25mM HEPES w/o phenol red (36 months)

Liebowitz Media

This media supports cell lines such as Hep-2 and MMC-MK2 and primary explants of embryonic and adult human tissue

L0300	Liebowitz media w/o L-Glutamine
P0350	Liebovitz L 15 w/ L-Glutamine (36 months)

Product Codes and Description

McCoy's 5A

McCoy's media was originally formulated for growth and supporting of lymphocytes. T his final modification produced a media identical to RPMI 1629. McCoy's 5A support the indefinite proliferation of Walker 256 carcinoma cells. In addition, it is excellent for the propagation of leukocytes, biopsy tissues, a broad range of human, rat normal and transformed cell types and the most demanding primary and continuous cell lines.

L0210	McCoy's 5A w/ L-Glutamine
L0211	McCoy's 5A w/o L-Glutamine
P0390	McCoy's 5A w/L-Glutamine w/o Na Bicarbonate (36 months)

Medium 199

This complex medium was originally developed specifically for nutritional research of chicken fibroblasts. Today, 199 media are widely used for the maintenance of non-transformed cells, vaccine and virus production and primary explants of epithelial cells.

L0320	Medium 199 w/Earle's salts w/ L-Glutamine w/1.25g Na Bicarbonate
L0330	Medium 199 w/ Hanks' salts w/ L-Glutamine
L0331	Medium 199 w/ Hanks' salts w/ L-Glutamine w/25mM HEPES
L0355	Medium 199 w/ Earle's modified salts w/ L-Glutamine
L0356	Medium 199 w/Earle's modified salts w/o L-Glutamine
L0360	Medium 199 w Earle's modified salts w/ L-Glutamine w/25mM HEPES
X0356	Medium 199 10X concentrate w/Earle's modified salts w/o L-Glutamine w/o Na Bicarbonate
P0410	Medium 199 modified w/ Hanks' salts w/o L-Glutamine w/o Na Bicarbonate (36 months)
P0420	Medium 199 w/ Earle's w/ L-Glutamine w/o Na Bicarbonate (36 months)
P0425	Medium 199 w/ Earle's salts w/ L-Glutamine w/25mM HEPES w/o Na Bicarbonate (36 months)

Product Codes and Description

MEM

Minimum Essential Media

A modification of BME featuring increased amino acid levels to more closely resemble the protein content of human cells. MEM serves as a general used medium ideal for the growth and maintenance of a wide range of mammalian cell types. Often used to support anchorage-dependent cells, however modified solutions can be used to support other cell types including calcium-free MEM for suspension cultures and MEM with Hanks' salts for diploid cells.

L0415	MEM w/Earle's salts w/ L-Glutamine
L0416	MEM w/ Earle's salts w/ stable L-Glutamine
L0430	MEM w/Earle's salts w/ NEAA w/o L- Glutamine
L0440	MEM w/ Earle's salts w/o L-Glutamine
L0444	MEM w/Earle's salts w/ L-Glutamine w/ 25mM HEPES
L0445	MEM w/Earle's salts w/o L-Glutamine w/ 25mM HEPES
L0465	MEM w/ Hanks' salts w/o L-Glutamine
L0470	MEM w/ Hanks' salts w/ 25mM HEPES w/o L-Glutamine
L0475	MEM Alpha w/ L-Glutamine w/o Ribonucleosides w/o Deoxyribonucleosides
L0476	MEM Alpha w/o L-Glutamine w/o Ribonucleosides w/o Deoxyribonucleosides
X0311	MEM 10X w/Earle's salts w/o L-Glutamine w/o Na Bicarbonate
X0321	MEM 10X w/ Hanks' salts w/o L-Glutamine w/o Na Bicarbonate
X0554	MEM Amino acids 50X concentrate w/o L-Glutamine
X0556	MEM Vitamins 100X concentrate w/o L-Glutamine
X0557	MEM non-essential amino acids (NEAA) 100X concentrate w/o L-Glutamine
P0440	MEM Alpha modification w/ Earle's salts w/ L-Glutamine w/o Na Bicarbonate (24 months)
P0450	MEM w/Earle's salts w/ L-Glutamine w/NEAA w/o Na Bicarbonate (36 months)
P0451	MEM w/ Earle's salts w/ L-Glutamine w/o NEAA w/o NA Bicarbonate (24 months)
P0452	MEM Eagle w/ Earle's salts w/ L-Glutamine w/ 25mM Hepes w/o Na Bicarbonate (36 months)
P0460	MEM Autoclavable w/ Earle's w/o L-Glutamine w/o Na Bicarbonate (36 months)
P0515	MEM w/Hanks' salts w/ L-Glutamine w/o Na Bicarbonate (36 months)

Product Codes and Description

RPMI 1640

RPMI are general-purpose enriched media with extensive applications for a vast range of mammalian cells incl human myeloma, mouse hybridoma, human leukocytes and B and T lymphocytes. It was originally formulated for suspension cultures and monolayer culture of human leukemic cells.

L0490	RPMI 1640 w/o L-Glutamine w/25mM HEPES
L0492	RPMI 1640 w/20mM HEPES Dutch modification 1g/L Na Bicarbonate
L0495	RPMI 1640 w/ L-Glutamine w/25mM HEPES
L0496	RPMI 1640 w/25mM HEPES w/ stable L-Glutamine
L0498	RPMI 1640 w/stable L-Glutamine
L0500	RPMI 1640 w/ L-Glutamine
L0501	RPMI 1640 w/o L-Glutamine
L0503	RPMI 1640 w/o Folic Acid w/o L-Glutamine
L0505	RPMI 1640 w/o L-Glutamine w/o phenol red
P0860	RPMI 1640 w/ L-Glutamine w/o Na Bicarbonate (36 months)
P0870	RPMI 1640 w/o L-Glutamine w/o Na Bicarbonate (36 months)
P0871	RPMI 1640 w/o L-Glutamine w/o Na Bicarbonate w/o Phenol Red (48 months)
P0875	RPMI 1640 w/o L-Glutamine w/ 25 mM HEPES w/o Na Bicarbonate (48 months)
P0876	RPMI 1640 w/ L- Glutamine w/ 25 mM HEPES w/o Phenol Red (48 months)
P0877	RPMI 1640 w/ stable Glutamine w/ 25 mM HEPES w/o Phenol Red (48 months)
P0880	RPMI 1640 w/ L-Glutamine w/o Na Bicarbonate w/o Phenol Red (48 months)
P0883	RPMI 1640 w/ L-Glutamine w/o Na Bicarbonate w/o Glucose (48 months)

Salts, Salt Solutions and Buffers

The irrigating buffers and salt solutions are sterile physiological balanced solutions intended for use in the maintenance of mammalian cells where a chemically defined, balanced salt solution provides an environment that will maintain the structural and physiological integrity of cells in vitro. These buffers and solutions are not cell culture media. They are composed of a phosphate buffer system, sodium chloride to adjust the osmolarity and perhaps sugar and metal ions for a short time for nutrition and stabilisation of morphology. For applications where Ca2+ and Mg2+ ions interfere with enzyme activity e.g. Trypsin, use the modified HBSS products.

SALTS

P2006	Cupric Sulphate Pentahydrate
P2010	Ferric Nitrate Nonahydrate
P2015	Ferric Sulphate Heptahydrate
P2025	Magnesium Sulphate Anhydrous
P2029	Magnesium Sulphate Anhydrous
P2065	Sodium Chloride
P2069	Sodium Phosphate Monobasic Anhydrous
P2073	Sodium Phosphate Monobasic Dihydrate
P2076	Sodium Phosphate Dibasic Anhydrous
P2079	Sodium Phosphate Dibasic Heptahydrate
P2088	Zinc Sulphate Heptahydrate
P2090	Calcium Chloride Dihydrate
P2092	Calcium Chloride Anhydrous
P2099	Calcium Nitrate Tetrahydrate

Salts, Salt Solutions and Buffers

SALT SOLUTIONS/BUFFER LIQUID 1X CONCENTRATE

L0180	HEPES Buffer 1M
L0600	Earle's Balanced Salt Solution (EBSS) w/o phenol red w/o Ca w/o Magnesium Sulphate
L0601	EBSS w/o Ca w/o Magnesium Sulphate
L0602	EBSS w/Ca w/Magnesium Sulphate
L0605	Hank's Balanced Salt Solution (HBSS) w/o Ca w/o Mg w/o phenol red
L0606	HBSS w/Ca w/Mg w/Na Bicarbonate w/phenol red
L0607	HBSS w/o Mg w/o Ca w/Na Bicarbonate w/o phenol red
L0608	HBSS w/o Na Bicarbonate w/phenol red
L0609	HBSS w/o Mg w/o Ca w/o Na Bicarbonate w/phenol red
L0611	HBSS HBSS w/o Mg w/o Ca w/ Na Bicarbonate w/phenol red
L0612	HBSS w/o phenol red
L0615	Dulbecco's Phosphate Buffered Saline (DPSS) w/o Mg w/o Ca Chloride
L0625	Dulbecco's PBS w/ Mg w/ Ca Chloride
L0636	Alsever's Solution
L0640	Sodium Chloride Salt Solution 0.85%
L0642	Sodium Pyruvate 100mM
L0643	Potassium Chloride 0.07mM
L0680	Sodium Bicarbonate 7.5%

SALT SOLUTIONS/BUFFER LIQUID 10X CONCENTRATE

X0112	Earle's Balanced Salt Solutions (EBSS) 10X concentrate
X0113	EBSS 10X concentrate, w/o Na Bicarbonate, w/o Ca w/o Mg
X0507	Hank's balanced Salt Solutions (HBSS) 10X w/o phenol red w/o Ca w/o Mg, w/o Na Bicarbonate
X0509	HBSS 10X concentrate w/o Na Bicarbonate, w/phenol red
X0510	HBSS 10X concentrate w/o phenol red w/o Ca w/o Mg w/Na Bicarbonate
X0512	HBSS 10X concentrate w/phenol red w/o Ca, w/o Mg
X0513	HBSS 10X w/o Ca w/o Mg w/o Na Bicarbonate w/phenol
X0515	Phosphate Buffered Saline (PBS) 10X concentrate w/o Mg w/o Ca
X0520	PBS 10X concentrate

SALT SOLUTIONS/BUFFER POWDER

P0153	Hanks Buffered Salt Solution (HBSS) w/o Ca w/o Mg w/o Na Bicarbonate
P0154	HBSS w/Ca w/Mg w/o Na Bicarbonate
P0750	Dulbecco's Phosphate Buffered Saline (DPBS) w/o Na Bicarbonate w/o Ca w/o Mg
P0751	DPBS w/Ca w/Mg
P5455	HEPES

Antibiotics

The use of Antibiotics is a helpful tool in the cell culture field or where the fluids have to be conserved and prevented from bacterial contamination. Most of the antibiotics suppress the growth of microorganisms by blocking an anabolic pathway.

L0009	Amphotericin B (frozen)
P4030	Amphotericin B frozen. Effective against yeast and other fungi. Suggested concentration is 2.5mg/L Toxic concentration 30mg/L stability
L0010	Antibiotic-Antimycotic 100X (frozen) Effective against the most common contaminants including yeast, fungi and bacteria. The recommended working concentration is 10ml/L
L0011	Gentamycin Sulphate 10mg/ml (frozen)
L0012	Gentamycin Sulphate 50mg/L (frozen)
P4020	Gentamycin Sulphate (powder)
L0013	Glutamine-Gentamycin (frozen)
L0014	Glutamine-Penicillin Streptomycin (frozen). Effective against gram positive and gram negative bacteria. The working concentration is 10ml/L
L0015	G-418 (Geneticin) Sulphate 50mg/L (frozen)
P0017	G-418 (Geneticin) Sulphate (powder)
L0017	Polymyxin B Sulphate 30.000U/ml (frozen) Effective against gram positive and gram negative bacteria. The working concentration is 10ml/L Recommended use 300U/ml, min 6.000USB U/mg Stable at 37oC: 5 days
L0018	Penicillin-Streptomycin Solution 50X (frozen)
L0022	Penicillin-Streptomycin Solution 100X (frozen) Effective against most gram positive and gram negative bacteria The recommended working concentration is 100,000 I.U. penicillin/100.000ug streptomycin per litre
L-D16	Nanomycopulitine, in DMEM w/25mM Hepes w/L-Glutamine
L-R16	Nanomycopulitine, in RPMI 1640 w/o L-Glutamine
L-I16	Nanomycopulitine, in Iscove's Modified Dulbecco's Medium w/o L-Glutamine w/o Hepes
L-X16	Nanomycopulitine, concentrate 20X To protect and clean cell cultures of bacterial and mycoplasma contamination Nanomycopulitine, has a wide spectrum of activity against gram negative and gram positive bacteria and also others like Chlamydia, mycobacteria and a broad range of Mycoplasma, Nanobacteria and bacterial L-Forms. Nanomycopulitine, is active and kills bacteria in all phases of the bacterial life cycle. Stable at 37oC: >20 days
P0025	Streptomycin Sulphate (powder). Effective against most gram positive and gram negative bacteria by inhibiting initiation and causing a misreading of rRNA during protein synthesis. The recommended working concentration is 100mg/L Stable at 37oC: 3 days, in liquid
P4010	Geneticin Disulphate (powder) Recommended use: 100-800ug/ml Stable at 37oC: 8 days, in liquid

Vitamins

The overall potential of vitamins not only in the field of research but also for therapeutic benefits of humans was realised at an early stage. Cell biology discovered the great importance of Vitamins for In Vitro cultivation of cells. It was discovered that mammalian cells are not able to synthesise this class of biological compounds and the artificial basic cell culture media containing sugars, salts and amino acids were supplemented with the different isolated vitamins. These formulations were later intensified. The development of nutritional media without the need for sera as a source of undefined growth promoting components ensured that all vitamins are now introduced into media formulations. It has become more and more clear that each cell type needs its individual medium as it is diverted from the different qualities of different organs from different species.

P3010	L-Ascorbic Acid (Vitamin C)
P3020	D-Biotin (Vitamin H)
P3030	Calcium D-Pantothenate
P3040	Choline Chloride
P3050	Folic Acid
P3060	Myo-Inositol
P3070	Nicotinamide
P3080	Nicotinic Acid
P3090	Pyridoxal Hydrochloride
P3100	Pyridoxine Hydrochloride
P3110	Riboflavin
P3120	Thiamine Hydrochloride
P3130	Vitamin B12
P3140	Vitamin A acetate
P3150	Vitamin E Acetate

Amino Acids

Amino acids are the alphabet of protein structure and determine many of the important properties of proteins. Beside the 20 amino acids found in building blocks of proteins, many additional biologically occurring amino acids serve other functions in the cells. Different organisms vary considerably in their ability to synthesise amino acids and therefore require these amino acids preformed in the diet, produced by plant or bacteria. These are called essential amino acids. Man and the Albino rat can make only 10 of the 20 common amino acids. The non-essential amino acids can be synthesised directly by the organism but they are also added to cell culture media to save energy for the cells.

P1001	L-Alanine
P1002	L-Arginine, free base
P1003	L-Arginine Hydrochloride
P1004	L-Asparagine Anhydrous
P1005	L-Asparagine Monohydrate
P1006	L-Aspartic Acid
P1007	L-Cysteine, free base
P1008	L-Cysteine Hydrochloride Monohydrate
P1009	L-Cysteine
P1010	L-Cysteine Dihydrochloride
P1011	L-Glutamic acid
P1012	L-Glutamine
P1013	Glycine
P1014	L-Histidine
P1015	L-Histidine Hydrochloride Monohydrate
P1016	l-Isoleucine
P1017	L-Leucine
P1018	L-Lysine Monohydrochloride
P1019	L-Methionine
P1020	l-Phenylalanine
P1021	L-Proline
P1022	L-4-hydroxyproline
P1023	L-Serine
P1024	L-Threonine
P1025	L-Tryptophan
P1026	L-Tyrosine
P1027	L-Tyrosine Disodium Salt
P1028	L-Valine
P1029	N-Acetyl-L-Alanyl-L-Glutamine, stable Glutamine
P1040	L-Ornithine Hcl
P1060	DL-Alanine
P1061	DL-Arginine
P1062	DL-Arginine Monohydrochloride Monohydrate
P1063	DL-Glutamic Acid monohydrate
P1064	DL-Histidine Monohydrochloride monohyd
P1065	DL-Leucine

Amino Acids

P1067	DL-Lysine monohydrochloride
P1070	DL-Phenylalanine
P1075	DL-Proline
P1085	DL-Tryptophan
P1220	D-Alanine
P1240	D-Arginine, Free base
P1270	D-Aspartic Acid
P1273	D-Cysteine, free base
P1274	D-Cysteine, Hydrochloride, monohydrate
P1276	D-Cysteine
P1280	D-Glutamic Acid
P1283	D-Glutamine
P1290	D-Histidine
P1310	D-Leucine
P1320	D-Lysine Monohydrochloride
P1330	D-Methionine
P1360	D-Phenylalanine
P1390	D-Proline
P1400	D-Tryptophan
P1410	D-Tyrosine
P1420	D-Valine

Others

L0040	Colcemid 10ug/ml in PBS (Demecolcin)
L0541	Phenol Red soln 0.5%
L0560	Lymphosep (Density 1.077) Lymphocyte Separation Media
L0645	Beta-Mercaptoethanol
L0909	Trypsin 0.25% in PBS w/o Ca w/o Mg w/ Phenol Red
L0910	Trypsin 0.25% in PBS w/o Ca w/o Mg
L0930	Trypsin EDTA 1X w/ Phenol Red
L0950	Trypsin 1X in Puck's Salts
L0970	Cell Culture Water, pyrogen free (<1pgr/ml) (WFI)
L0990	Trypan Blue 0.5% soln
P5648	Phenol Red Sodium Salt
P5810	Sodium Pyruvate
P5922	Thymidine
P5933	Tryptose Broth
P5944	Tryptose Phosphate Broth
P6150	BSA standard quality, lyophilised
P6151	BSA high cleaned, cell culture tested
P7500	Liposorb
X0550	L-Glutamine 100X 200mM
X0551	L-Glutamine stable 100X 200mM
X0915	Trypsin 2.5% in PBS
X0930	Trypsin-EDTA 10X
X0960	Trypsin 2.5% 10X in Puck's salts







Company Information

Biosera supplies high quality cell culture products to cell culturists around the world. US sales are handled from our office in Miami, Florida and all other sales worldwide from East Sussex, UK. Our proximity to serum sources enables us to provide a wide range of sera of certificated origin. Our experience in supplying biological and perishable materials allows us to deliver our high quality products in the appropriate condition to customers near and far.

INTERNATIONAL ACTIVITIES

Biosera customers can now be found in every corner of the globe with direct sales focused in the US and UK and the use of a network of distributors in over 35 other countries. Your local Biosera offices are listed below and please see our website for our up to date Distributors details.

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